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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/595,226

03/28/2006

Tatsuya Ikeda

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EXAMINER

OLSEN, LIN B

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/595,226	<b>Applicant(s)</b> IKEDA ET AL.	
	<b>Examiner</b> LIN B. OLSEN	<b>Art Unit</b> 3661	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on March 28, 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The documents for the submittal under 371 have been received.

### ***Information Disclosure Statement***

The information disclosure statements (IDS) submitted on March 28, 2006 and September 17, 2007 were filed before the mailing date of the first action on the merits. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Claim Objections***

Claims **1, 3-4 and 6** are objected to because of the following informalities:

In claim 1, Line 9, "requesting to enabling" should be "requesting to enable".

Line 11, "relatively" should be relative.

In claim 3, Line 3, "relatively" should be relative

In claim 4, Line 5, "relatively" should be relative

In claim 6, Line 1, "of" should be between "first joint" and "the industrial"

Line 2, "relatively" should be relative

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

**Claim 1** is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a set of operations involving interaction between an operator and machine to recalibrate the origin of the machine, does not reasonably provide enablement for a sequence of operations which adjust the origin merely by displaying instructions to the operator. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. From the claims, one skilled in the art would conclude that the method can be accomplished without waiting for the operator to accomplish some tasks.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims **1, 2 and 4** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In **claim 1**, the phrase “arranged to be attached to the first member” is indefinite because it is unclear whether the positioning member is attached to the first member or merely arranged so that it can be attached. Further the phrase “requesting to enabling

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the positioning member to contact the contact point” - does not convey that the operator should attach the positioning member to the first member so that the positioning member can be contacted by the contact point.

In **claim 2**, the phrase “for disabling the positioning member to contact the contact point” does not convey that the operator should detach the positioning member from the first member so that the positioning member cannot be contacted by the contact point.

In **claim 4**, the phrase “for requesting to disabling the positioning member to contact the contact point” does not convey that the operator should detach the positioning member from the first member so that the positioning member cannot be contacted by the contact point.

### ***Claim Rejections - 35 USC § 103***

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

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were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims **1-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese application 2001-036879 to Hidekazu as described in Patent Abstracts of Japan 2002-239967 and machine translation attached (Hidekazu) in view of U.S. Patent No. 4,481,592 to Jacobs et al. (Jacobs). Hidekazu is concerned with determining a reference position for an arm of a robot. Jacobs is concerned a calibration system for a programmable manipulator.

Regarding independent **claim 1**, "A method of adjusting an origin of an industrial robot, said method comprising:" – As described in Hidekazu under "Problem to be solved" – to easily determine a reference rotation position of an arm .. that is rotatably connected one part to another.

"providing an industrial robot which includes

a first member,

a positioning member arranged to be attached to the first member,

a second member arranged to rotate relatively to the first member, the

second member having a contact point arranged to contact the positioning

member, and

a first joint for coupling the first member with the second member;” – in Hidekazu Figure 5, the industrial robot is shown with a number of members with reference number 5 associated with first member, reference number 6 associated with second member and positioning member 25 fits into item 5 and can contact contact point 30 of item 6. Section 0009 states that there is a twisting relationship between items 5 and 6.

“displaying an indication for requesting to enabling the positioning member to contact the contact point;” – The procedure described in Hidekazu is manual, with no mention of prompting an operator to do their part. However, Jacobs describes a calibration system that is implemented with prompting to the operator via the teach module as shown in Fig. 2. In Jacobs Fig. 26a, the automated calibration flow chart is shown including displaying directions to an operator. It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the prior art technique of automating a calibration procedure to the procedure taught by Hidekazu to yield predictable results. Hidekazu line 3 of section 0014 through line 5 of section 0015 teaches placing the positioning pin in a socket on item 5.

“rotating the second member at the first joint relatively to the first member while the positioning member can contact the contact point;

detecting whether or not the contact point of the second member contacts the positioning member; and: - In Hidekazu, section 0016; the second member (6) is rotated until the position pin 25 touches the contact surface 30.

“storing a position of the second member as an origin when detecting that the contact point of the second member contacts the positioning member.” – In lines 4-5 of section 0016, the control system memorizes the position when the positioning pin touches the contact surface,

Regarding **claim 2**, which is dependent on claim 1, further comprising:

“after said storing the position of the second member as the origin, positioning the contact point of the second member at a predetermined position where the contact point does not contact the first member;

displaying an indication for disabling the positioning member to contact the contact point; and

confirming whether or not the positioning member cannot contact the contact point.” – In Hidekazu section 0018, the positioning pin 25 is removed from element 5 after the twist arm 6 is moved out of the way. It would have been obvious to one of ordinary skill in the art at the time of the invention to prompt the operator to remove the positioning pin in the Hidekazu/Jacobs system and then confirm that the arm 6 can move to any position.

Regarding **claim 3**, which is dependent on claim 2, “wherein said confirming whether or not the positioning member cannot contact the contact point comprises rotating the second member at the first joint relatively to the first member.” – In



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Hidekazu, section 0020, the free movement of arm 6 is done by twisting the arm clockwise.

Regarding **claim 4**, which is dependent on claim 1, further comprising:

“displaying an indication for requesting to disable the positioning member to contact the contact point; and

positioning the contact point of the second member at a predetermined position by rotating the second member relatively to the first member while the positioning member cannot contact the contact point,

wherein said displaying the message for requesting to disable the positioning member to contact the contact point is executed before said positioning the contact point of the second member at the predetermined position.” - – In Hidekazu section 0018, the positioning pin 25 is removed from element 5 after the twist arm 6 is moved out of the way. It would have been obvious to one of ordinary skill in the art at the time of the invention to prompt the operator to remove the positioning pin in the Hidekazu/Jacobs system and then confirm that the arm 6 can move to any position.

Regarding **claim 5**, which is dependent on claim 1, “wherein the industrial robot further includes a second joint, said method further comprising

selecting the first joint from the first joint and the second joint.” – The robot of Hidekazu has a number of joints – between base 1 and arm 2, and between arms 2 ,3,

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4, 5, and 6 – Hidekazu teaches that the method can be performed on whichever joint is to be calibrated.

Claim **6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hidekazu/Jacobs as applied to claim 1 above, and further in view of U.S. Patent No. 6,996,456 to Cordell et al. (Cordell). Cordell is concerned with calibrating an industrial robot

Regarding **claim 6**, which is dependent on claim 1, “wherein the first joint the industrial robot further includes a motor for rotating the second member relatively to the first member, and” – In Hidekazu section 003, the sections are connected via a motor to twist the member.

“wherein said detecting whether or not the contact point of the second member contacts the positioning member comprises detecting whether or not the contact point of the second member contacts the positioning member according to a current flowing in the motor.” – Hidekazu does not specify the means to identify contact of the positioning pin and the contact surface, but Cordell at col. 3 lines 1-4 indicates that touch sensing may be accomplished by sensing the motor torque variations. It would have been obvious to one of ordinary skill in the art at the time of the invention to use Cordell’s touch sensing in the Hidekazu/Jacobs combination according to known methods since it does not require further costs as a switch or current flow sensor would.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 5,558,196 to Nihei et al for detecting the limits of motion of a robot; U.S. Patent Pub. No. 2003/0216821 to Kim et al. for an apparatus for measuring the position of an instrument held by a robot; European Patent EP 1 743 745 A1 to Iwai for an industrial robot; and Abstract of JP2005111576A for an origin adjusting device. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LIN B. OLSEN whose telephone number is (571)272-9754. The examiner can normally be reached on Mon - Fri, 8:30 -5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on 571-272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Lin B Olsen/  
Examiner, Art Unit 3661

/Thomas G. Black/

Supervisory Patent Examiner, Art Unit 3661